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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,687	06/20/2003	Philip D. MacKenzie	15	6727

7590 06/26/2007
Ryan, Mason, & Lewis, LLP
90 Forest Avenue
Locust Valley, NY 11560

EXAMINER

TO, BAOTRAN N

ART UNIT	PAPER NUMBER
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2135

MAIL DATE	DELIVERY MODE
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06/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/600,687

Applicant(s)

MACKENZIE, PHILIP D.

Examiner

Bao Tran N. To

Art Unit

2135

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08/14/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Docketing

1. Please note that the application has been re-docketed to a different examiner. Please refer all future communications regarding this application to the examiner of record using the information supplied in the final section of the Office action.

This Office Action is responsive to the Applicant's Amendment filed 04/12/2007.

Claims 1 and 9 are amended.

Claims 1-16 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1 and 9 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues, "No where does Cramer teach or suggest the recited limitation of 'generating in the first party device a plaintext corresponding to the ciphertext based on assistance from the second party device.'"

Examiner respectfully disagrees with applicant Cramer explicitly discloses, "The computed ciphertext 30 with the cipher-number u_1 , u_2 , e , v is transmittable via an insecure channel, as described above. For the sake of clarity, this is not indicated in section III in FIG. 2. The ciphertext 30 does not leak any information about the keys and therefore the plaintext m is hidden assuming the Decisional Diffie-Hellman problem, also referred to as DDH problem, is hard. For the transmission of the ciphertext 30, the sending device, e.g. the first device 1 as described with reference to FIGS. 1 a and 1 b, uses output means, whereas the receiving devices, e.g. the second device 2 as

Art Unit: 2135

described with reference to FIGS. 1a and 1b, uses input means for receiving the ciphertext 30 (Col. 8 line 24-35). Therefore, Cramer's reference is maintained.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 8 and 16 rejected under 35 U.S.C. 102(e) as being anticipated by Cramer et al, (US Patent No. 6697488) hereinafter Cramer.

As per claims 8 and 16, Cramer discloses a method for use in a device associated with a first party for assisting in decrypting a ciphertext according to a Cramer-Shoup based encryption scheme, the method comprising the steps of:

receiving a request generated in and transmitted by a second party device for the partial assistance *{the partial assistance is the steps to verify the ciphertext before going through the decryption process in section V}* of the first party device in decrypting the ciphertext according to the Cramer-Shoup based encryption scheme (Col. 8, line 38 – Col. 9, line 25); and

Art Unit: 2135

generating results in the first party device based on the partial assistance provided thereby for use in the second party device to complete decryption of the ciphertext" (Col. 8 line to Col. 10 line 5) { *Section IV teaches a verification steps to check the received ciphertext. Section V teaches steps of decrypting the received and verified ciphertext with the assistance of the sender*} (*Cramer and Shoup are the inventors of this prior art*) (Col. 8 line 25 to Col. 10 line 5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 4-6, 9-10 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cramer et al, (US Patent No. 6,697,488) hereinafter Cramer in view of Faucher (US Patent No. 5,515,441) hereinafter Faucher.

As per claims 1 and 9, Cramer discloses a method for use in a device associated with a first party for decrypting a ciphertext according to a Cramer-Shoup based encryption scheme (Col. 6 lines 10-15); the method comprising the steps of:

obtaining the ciphertext in the first party device sent from a device associated with a second party (Col. 8, lines 25-35, encrypted plaintext); and

generating in the first party device a plaintext corresponding to the ciphertext based on assistance from the second device, the plaintext representing a result of the decryption according to the Cramer-Shoup based encryption scheme (Col. 8 line 25 to Col. 10 line 5) { Section IV teaches a verification steps to check the received ciphertext. Section V teaches steps of decrypting the received and verified ciphertext with the assistance of the sender} (Cramer and Shoup cryptographic system invention).

Cramer does not disclose "wherein the assistance comprises an exchange of information between the first party device and the second party device separate from the sending of the ciphertext from the second party device to the first party device."

However, Faucher explicitly discloses wherein the assistance comprises an exchange of information between the first party device and the second party device separate from the sending of the ciphertext from the second party device to the first party device (col. 3, lines 5-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated Faucher's reference within Cramer to include wherein the assistance comprises an exchange of information between the first party device and the second party device separate from the sending of the ciphertext from the second party device to the first party device. One of ordinary skill in the art would have been motivated to do this because it would secure communications conducted over insecure channels using public-keys method (col. 1, lines 13-15).

As per claims 2 and 10, Cramer and Faucher disclose the limitations of Claims 1 and 9. Cramer further discloses wherein the generating step further comprises an

Art Unit: 2135

exchange of information between the first party device and the second party device whereby at least a portion of the information is encrypted using an encryption technique such that one party encrypts information using its own public key and another party can not read the information but can use the information to perform an operation" in (Col. 7 lines 1-40, and Col. 9 lines 25-45) {The public key is g_1 , g_2 , c , d , and h . The exchanged information is z }.

As per claims 4 and 12, Cramer and Faucher disclose the limitations of Claims 1 and 9. Cramer further discloses wherein the generating step further comprises:

generating a share of a random secret (Col. 7, lines 11-19);

generating information representing encryptions of a form of the random secret, a share of a private key, and the ciphertext (Col. 7 lines 10-27) {private key Z , and the random group};

transmitting at least the encrypted information to the second party device" (Col. 6, lines 46-57); and

computing the plaintext based at least on the share of the random secret, the share of the private key, the ciphertext, and the data received from the second party device (Figure 3, Col. 9 lines 25-50).

As per claims 5 and 13, Cramer and Faucher disclose the limitations of Claims 1 and 9. Cramer further discloses wherein the first party device and the second party device additively share components of a private key" in (Col. 7 lines 10-15, and Col. 9 lines 35-40).

Art Unit: 2135

As per claims 6 and 14, Cramer and Faucher disclose the limitations of Claims 1 and 9. Cramer further discloses wherein the generating step further comprises generation and exchange of proofs between the first party device and the second party device that serve to verify operations performed by each party” in (Col. 8 line 38 to Col. 9 line 23).

5. Claims 3, 7, 11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cramer and Faucher and further in view of Ronald Cramer et al, “Multiparty Computation from Threshold Homomorphic Encryption”.

As per claims 3 and 11, Cramer and Faucher disclose the limitations of Claims 1 and 9. Cramer and Faucher do not disclose “wherein the generating step further comprises an exchange of information between the first party device and the second party device whereby at least a portion of the information is encrypted using an encryption technique having a homomorphic property.”

However, Ronald Cramer discloses wherein the generating step further comprises an exchange of information between the first party device and the second party device whereby at least a portion of the information is encrypted using an encryption technique having a homomorphic property (page 18).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated Ronald Cramer's reference within Cramer and Faucher to include the encryption technique having a homomorphic

Art Unit: 2135

property. One of ordinary skill in the art would have been motivated to do this because it would secure communications conducted over insecure channels (col. 1, lines 13-15).

As per claims 7 and 15, Cramer and Faucher disclose the limitations of Claims 1 and 9. Cramer and Faucher do not disclose wherein the proofs are consistency proofs based on three-move SIGMA-protocols.

However, Ronald Cramer discloses wherein the proofs are consistency proofs based on three-move SIGMA-protocols the proofs are based on three move SIGMA. Protocols (page 13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated Ronald Cramer's reference within Cramer and Faucher to include the proofs are based on three move SIGMA. protocols. One of ordinary skill in the art would have been motivated to do this because it would secure communications conducted over insecure channels (col. 1, lines 13-15).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

Art Unit: 2135


mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bao Tran N. To whose telephone number is 571-272-8156. The examiner can normally be reached on Monday-Friday from 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Y. Vu can be reached on 571-272-3859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT
06/20/2007


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